

Design Guidelines	1
Water and Sewer Expansion Guidelines	4
Guiding Principles	4
Planning Design and Construction	5
Connection Charges	5
Extensions, Cost Sharing and Payment Method	7
Extension by Developers	7
Industrial Pretreatment Requirements	9
Water Distribution System Check List	10
Wastewater Collection System Check List	11

Design Guidelines

Staying abreast of the continuously changing governmental mandates and technological advances, the Water and Sewer Bureau's utility plan review is based on master planning concept with a regional approach. To ensure conformance to acceptable engineering practices and system compatibility, the city's water and sanitary sewer collection, transmission, supply and treatment systems design and operations are based on industry standards of the Wastewater Environmental Federation (WEF), American Water Works Association (AWWA), Fire Insurance Services Office (ISO) and Ten State Standards.

Plan review also assure compliance with Water Pollution Control Act (WPC), Safe Drinking Water Act and Amendments, Industrial Pretreatment Regulations and other applicable Federal, State and Local Regulatory requirements.

The following are home page addresses of some of the professional organizations on the World Wide Web (WWW).

<u>Name of Organization</u>	<u>Home Page Address</u>
American Water Works Association (AWWA)	http://www.awwa.org
Water Environment Federation (WEF)	http://www.wef.org
Insurance Services Office, Inc. (ISO)	http://www.iso.com

The Water and Sewer Planning and Development Department serves as a clearinghouse for development requests requiring water and sewer services and/or extensions. A copy of the water and wastewater general check list items is provided at the end of this section.

The following list provides the items needed by the department to efficiently review service requests and/or sewer extensions. **Samples of all requested forms and exhibits are located in Water and Sanitary Sewer Forms and Exhibits.** There is a ten-work-day review standard for the department to review developmental plans not requiring upsizing to serve other property on a master plan approach. The following general information and/or documentation is needed:

- ! Provide completed water distribution and wastewater collection system data forms. This information is needed to keep system inventory up-to-date (Exhibit 1 and 2, Water and Sanitary Sewer Forms and Exhibits).

- ! Provide details of meter size, type and location, valve in manhole, service connection(s), backflow preventor devices, fire hydrant installation, thrust restraint/blocks etc., sanitary sewer manhole, sanitary sewer lateral detail, as applicable. Size and select water meter using latest AWWA guidelines. Sample of sizing and selection of water meters is included Water and Sanitary Sewer Forms and Exhibits, Exhibit 3. Also, see Cross Connection Control Policy for requirements.
- ! Provide analysis for water system indicating flows and pressures for residential subdivisions with 10 or more lots and for commercial and industrial developments (Exhibit 4, Water and Sanitary Sewer Forms and Exhibits).
- ! Provide wastewater load information including Equivalent Residential Units (ERUs) based on latest City of Savannah Revenue Ordinance (Exhibit 6, Water and Sanitary Sewer Forms and Exhibits).
- ! Complete Sanitary Sewer Extension Form (Exhibit 7, Water and Sanitary Sewer Forms and Exhibits) and provide Landfill Certification letter if sanitary sewers are to be extended.
- ! Provide oil and grease trap location and details for any plans submitted for service stations and/or restaurants in accordance with City of Savannah's grease interceptors standards (Grease Interceptor Standards).
- ! Provide plans for soil erosion and sediment control, paving, grading, finished floor elevations and drainage. These plans are needed even if development occurs in the county area.
- ! Submit the following information prior to any connection being made to the City Water System if a fire system is proposed:
 - ☐ Complete plans and hydraulic calculations.
 - ☐ Owner/client declaration form delineating responsibility of maintenance of fire line and appurtenances.
 - ☐ Detail of the installation of double detector check valve and meter on the fire line.
 - ☐ If no fire system is proposed, please indicate on the plans.

! If an irrigation system is proposed, submit the following information prior to any connection to the City Water System:

- ☐ Plans and specifications.
- ☐ Detail of backflow prevention device on irrigation system.
- ☐ Irrigation system should be metered in accordance with the established City of Savannah specifications.
- ☐ If no irrigation system is proposed, please indicate on the plans.

! If a sanitary sewer lift station is proposed, the following must be provided:

- ☐ Design calculations, construction details, and related drawings and specifications.
- ☐ Pump, system and efficiency curve data.

! In all water line projects, care will be taken to keep the interior of the water pipe clean prior to connection to the City system. This will be accomplished by strict adherence to the following City specifications:

“Pipe, fittings, valves and other accessories shall, unless otherwise directed, be unloaded at the point of delivery, and stored where they will be protected and will not be hazardous to traffic. They shall at all times be handled with care to avoid damage. The interior of all pipe, fittings and other accessories shall be kept free from dirt and foreign matter at all times.

Any defective, damaged, or unsound pipe shall be rejected. All foreign matter or dirt shall be removed from the inside of the pipe before it is lowered into its position in the trench and shall be kept clean by approved means during and after laying. Care shall be taken to prevent dirt from entering the joint space. At times when pipe laying is not in progress, the open ends of the pipe shall be closed by approved means and no trench water shall be permitted to enter the pipe.

Clean the interiors of all pipe by brushing, swabbing or washing out of all dirt before laying.

Flush the new pipe lines until the water runs clear at the end of all mains and laterals. This should be done after the pressure test and before disinfection.”

- ! In your plans and specifications, please include the following:
 - ☐ During installation, when pipe laying is not in progress, a mechanical joint plug or cap, or approved equal, will be used to form a water tight seal at both ends of the line being laid.
 - ☐ An acceptable method of flushing prior to connection to the City water system. Specify minimum flush time and velocity which are necessary to purge the line of any foreign material.
- ! Provide recorded plats of the public easements for water and sanitary sewer lines. It will be the responsibility of the design engineer/developer/owner and/or contractor to ensure that the utilities are placed within the easements with a minimum 7'6" width available from center line of the water and/or sewer line.
- ! If construction of water or sewer facilities, to be dedicated to the city for operation and maintenance, then a water and sewer agreement between the developer and the city will be required. **See Water and Sanitary Sewer Agreements for requirements.**
- ! To locate city water and sanitary sewer lines, contact the One Call Locate line (1-800-282-7411) a minimum of seventy-two (72) hours prior to digging.

Water and Sewer Expansion Guidelines

Guiding Principles

The planning, design and construction of a water or sewer system shall be based upon a master plan concept that ensures that any and all parts of the system are compatible with the system as a whole. The cost of extending water and sewer facilities to serve new development shall be done at no cost to the City. Those who will benefit from the construction of the extension of the water and sewer systems shall pay the cost thereof.

Planning Design and Construction

As a minimum, the facilities to be constructed must meet the following requirements:

- ! The system shall be designed so that the minimum instantaneous residual pressure shall not be less than 20 pounds per square inch and the fire flow of not less than 1,000 gallons per minute in any and all parts of the service area as a whole.
- ! The system shall be designed and tested consistent with the specifications and requirements maintained by the City Engineer.
- ! All common parts of the system, that is those parts of the system that will or have the potential to serve more than one customer, shall be located within a public easement or right-of-way and dedicated to the City.

Connection Charges

The City has established a system of connection charges to recover certain capital costs incurred to serve new customers. This system is intended cause the benefitting parties to pay for the capital investments made by the system on their behalf. The specific charges are described in the City of Savannah Revenue Ordinance which is updated each year. A current copy of the Revenue Ordinance may be obtained from the City's Revenue Department, or the Water and Sewer Planning and Development Department. Included in this Manual in Water and Sanitary Sewer Fees is a copy of the applicable section of a recent City Revenue Ordinance.

Most charges are based on a per Equivalent Residential Unit ("ERU") basis. An ERU generally represents water demand averaging 300 gallons per day. Non-residential property uses are converted to ERUs using the standards contained in the Revenue Ordinance.

The connection charges fall into two broad categories: i) "system-wide" connection charges and ii) "geographically based" charges. The "system wide" charges are charged to all new connections throughout the system, while the "geographically based" charges apply only to the geographical areas that benefitted from the improvement whose costs are being recovered by the charge.

The “system wide” connection charges are:

- ! **Water Tap-in Fee.** This connection fee is currently \$600 per ERU for connections inside the City, and \$900 per ERU for connections outside of the City. This fee is levied to recover the cost of expanding the I&D Surface Water Treatment Plant. This plant must be expanded to provide new water supply source for new development due to restrictions on withdrawals from the Floridian Aquifer imposed by the Georgia EPD.
- ! **Sewer Tap-in Fee.** This connection fee is currently \$400 per ERU for connections inside the City, and \$500 per ERU for connections outside of the City. Existing customers have provided funds for debt retirement and cash financing of improvements and additions to the system through payment of their consumption charges. It is because of these improvements and additions that the system has capacity available to take on and serve new customers. New customers connecting to the system therefore are required to pay an amount (the Sewer Tap-in Fee) - representing net equity in the sewer system built up by the current system customers.
- ! **Meter Installation Fee.** This fee is charged on a per meter basis (not per ERU) and is intended to recover the cost of the meter and related installation and inspection costs. The fee varies with meter size and also depends on who (the City or a licensed plumber) actually performs the installation.

Examples of “geographically based” connection charges are:

- ❑ **President Street Plant Surcharge.** This charge is \$865 per ERU and applies to all areas served by the President Street Sewage Treatment Plant. This charge recovers the cost of the plant expansion completed in the early 1990s that increased the Plant’s capacity to 27 MGD.
- ❑ **Georgetown Plant Surcharge.** This charge is \$700 per ERU and applies to all areas served by the Georgetown Sewage Treatment Plant. This charge recovers the cost of the plant expansion and construction of an effluent discharge.
- ❑ **Travis Field Plant Surcharge.** This charge is \$375 per ERU and applies to all areas served by the Travis Field Sewage Treatment Plant. This charge recovers the cost of the plant expansion and construction of an effluent discharge.

- ❑ **Chatham Parkway Sewer Surcharge.** This charge is \$750 per ERU and applies to all areas served by the Chatham Parkway regional sewage pump station. This charge recovers the cost of the regional pump station and associated force main and upgrade to the sewage transport system needed to convey sewage to the President Street Plant.
- ❑ **Islands Sewage Transport System Surcharge.** This charge is \$975 per ERU and applies to all areas served by the Islands Sewage Transport System. This charge recovers the cost of the system of pump stations and force mains and upgrade to the sewage transport system needed to convey sewage from the Island Areas to the President Street Plant.

The above list is not all inclusive; it is a list of representative examples only. For a complete list of applicable geographic area surcharges, consult the Revenue Ordinance or contact the Water and Sewer Planning and Development Department.

Extensions, Cost Sharing and Payment Method

The general policy is that the extension of the water system will be done at no cost to the City. Developers will pay a minimum or pro rata share of the cost, whichever is greater, for extending the water system. The City, under some circumstances for development within the city limits, may pay the cost for extending water facilities and establish a connection surcharge to reimburse it for its cost. The specific guidelines for the various options and exception of the general policy are noted below:

Extension by Developers

Extensions by developers shall be designed and constructed consistent with the master plan concept for the service area in which the extension is to be made. Developers shall pay the full cost of extending water and sewer facilities sized to master plan concept which will only serve the developer's project. The City may share in the cost of extending water and sewer facilities that will have the potential to serve property not owned by the developer. Developers shall pay the full cost of all on-site facilities.

Whenever provision of sanitary sewer service to an unsewered area (which is provided water service by the city) necessitates construction of a sanitary sewer pumping station, the following requirements shall be met:

- ! If no additional areas will be served by the pumping station, the developer shall construct at no cost to the city an approved minimum sanitary sewer pumping station. The minimum size station shall have 80 GPM capacity with 5.0 H.P. pumps and minimum 4" diameter force main.
- ! If the regional pumping station will serve more areas than the developer's anticipated service area, the city will establish a surcharge for the entire service area. The city will collect and administer the surcharge fees. The developer will construct the pump station in conformance with plans approved by the city. Upon completion of the pump station and dedication to the city, the city will reimburse the developer for the pro rata share of the pump station cost allocated to area to be served not owned by the developer. The minimum pro rata developer's cost will be the greater of the cost to construct a minimum size pump station or the pro rata share of the actual cost of the pump station based on projected flows from developer owned property. Exact terms/cost sharing arrangement for pump station will be defined in a water and sewer agreement between the developer and the city.

Wherever there is no immediate plan for construction of a regional pumping station in an unsewered area, the city may allow installation of a grinder station for temporary service. Such installation may be allowed only in areas which are provided water service by the City.

- ! **Extension of water transport system by City.** The City may extend water transport lines into a service area to supply water or upgrade the water system capabilities. When done at the request of property owners and/or developers within the area to be served, the property owner/developer shall first enter into a written agreement with the City to pay for their share of the cost for the water transport line under conditions and terms acceptable to both parties. The City shall establish an additional connection fee to reimburse the city for its share of the cost for the water transport line.

- ! **Extension of water distribution system by city as part of street paving/fire protection.** The city may extend water distribution lines to an unserved location as part of a street paving project and/or provide fire protection. The City shall bear the initial cost for extending the water system and establish an additional connection fee to reimburse the city for the cost.

Industrial Pretreatment Requirements

Industries within municipal limits are allowed to discharge their wastewater to the city's sewer system after pretreatment. Pretreatment at the industrial site must be considered for wastes having strengths or characteristics significantly different from sanitary wastewater. See Combined Sewer Use and Pretreatment Ordinance.

The following are items required to obtain a pretreatment permit:

- ! Completed application/questionnaire with non-refundable fee of \$150.00. A copy of sample application/questionnaire is provided under pretreatment application/questionnaire.
- ! Floor plan of facility and site plan of the industry with locations of chemical storage facilities.
- ! Schematic drawing of pretreatment system.
- ! Copies of certifications of lab analyst and operators.
- ! Lab analysis of wastewater.
- ! Site inspection by pretreatment personnel.
- ! Slug/spill control plan.

Water Distribution System Check List

Typical Water System Plan shall include:

Check Off

- | | | |
|-----|--|----------------------------------|
| 1) | Layout and legend | _____ |
| 2) | City exhibit Form #2 completed and attached | _____ |
| 3) | City exhibit Form #4 attached for 10 or more lots or for commercial/industrial development | _____ |
| 4) | Show waterline easement (7.5' min. each side from the center line of water line) | _____ |
| 5) | Valves 4" and larger placed in manholes | _____ |
| 6) | Meters sized and located per city Exhibit #3 | _____ |
| 7) | All service connections shown | _____ |
| 8) | Existing and proposed fire hydrant shown | _____ |
| 9) | Fire Flow Demand <ul style="list-style-type: none"> • Calculate water need based upon ISO Guidelines • Show maintenance responsibility for fire line and appurtenances in owner/client agreement • Show double detector check valve & meter detail • If no fire system is proposed, please indicate on the plans | _____

_____ |
| 10) | Irrigation System <ul style="list-style-type: none"> • Calculate water need based upon system design • Show size and location of backflow preventor and water meter • If no irrigation system is proposed, please indicate on the plans | _____

_____ |
| 11) | Attach certification that water and/or sewer lines are not in nor do they serve structures built upon solid waste landfills | _____ |
| 12) | City of Savannah specifications and details used | _____ |
| 13) | Proposed water/sewer agreement attached | _____ |
| 14) | Georgia Registered P.E. stamp and signature | _____ |

Wastewater Collection System Check List

Typical Wastewater System Plan shall include:

Check Off

- | | | |
|-----|--|----------------|
| 1) | Layout and legend | _____ |
| 2) | City exhibit Form #1 completed (load data) | _____ |
| 3) | City exhibit Form #6 completed (sewer extension) | _____ |
| 4) | For effluents with process water, complete industrial wastewater questionnaire (exhibit #9) | _____ |
| 5) | Manholes placed at 400' (max.) spacing | _____ |
| 6) | Manholes placed at line directional changes | _____ |
| 7) | Manhole frame and invert elevations shown | _____ |
| 8) | Invert elevations shown for all pipe inside manholes | _____ |
| 9) | Minimum gradient of 0.4% used for 8" pipes | _____ |
| 10) | Maximum height of 2' between invert of pipes and invert of discharge manholes | _____ |
| 11) | Maximum angle of 90 degrees for influent lines | _____ |
| 12) | Oil/grease traps and details provided for service station and food service preparers | _____ |
| 13) | Grading, paving, drainage, erosion control plans attached | _____ |
| 14) | Attach certification that water and/or sewer lines are not in nor do they serve structures built upon solid waste landfills | _____ |
| 15) | For pump station design: <ul style="list-style-type: none">• Attach design calculations with pump curves• City of Savannah pump station design standards used to prepare drawings, details and specifications | _____
_____ |
| 16) | City of Savannah sewer specifications and details used | _____ |
| 17) | Proposed water/sewer agreement attached | _____ |
| 18) | Georgia Registered P.E. stamp and signature | _____ |